

# NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

July 19, 2011

# Precipitation and Snowpack

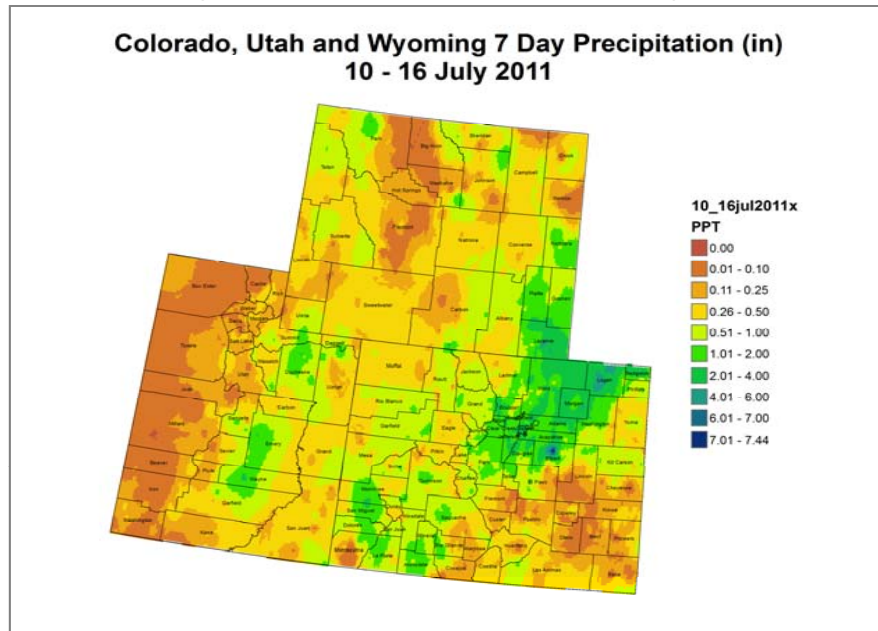


Fig. 1: Weekly total precipitation from July 10 through July 16.

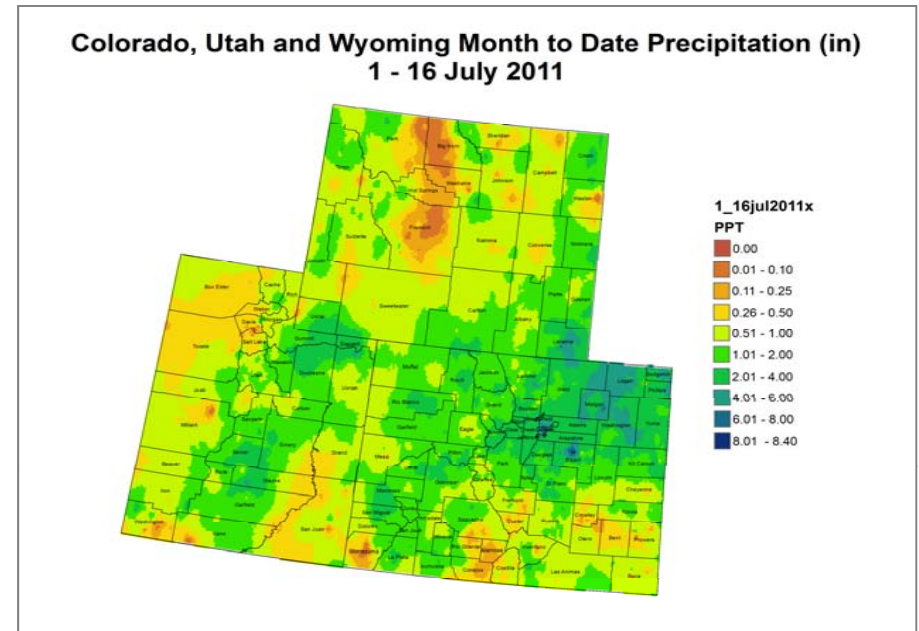


Fig. 2: July month-to-date precipitation in inches.

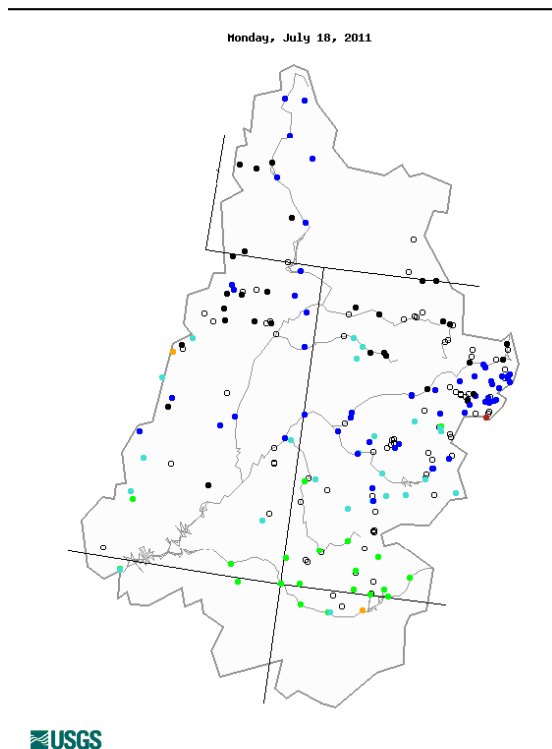
Over the past week continued flow of monsoonal moisture has brought rain to many areas in the UCRB (Fig. 1). Lower elevations of northeast Utah and southwest Wyoming received minor amounts of precipitation while the higher terrain received 0.5 to 1.0 inches of rain. The valley areas and the Four Corners region remain dry, with the mountains of southwestern and central CO receiving moderate amounts of precipitation. East of the UCRB, northeast Colorado continues to see near to above average precipitation, while southeast CO and the San Luis Valley remain very dry.

The month of July shows most of the high terrain of the UCRB receiving 1.0 to 4.0 inches of precipitation while valley locations generally saw less than 0.5 inches (Fig. 2). Areas of northeast UT and northeast CO continue to receive ample moisture. While additional light rainfall over portions of southeast CO has continued to prevent deteriorating drought conditions, some areas have received less than 0.5 inches since July 1<sup>st</sup>.

# Streamflow and Water Supply

As of July 17<sup>th</sup>, about 98% of the USGS streamgages in the UCRB recorded normal (25<sup>th</sup> – 75<sup>th</sup> percentile) or above normal 7-day average streamflows with 64% of the gages recording flows above the 75<sup>th</sup> percentile and 23% reporting highest flows on record for this date (Fig. 3). Key gages on the Colorado River near the CO-UT state line and the Green River at Green River, UT have above normal 7-day average streamflow at the 97<sup>th</sup> and 95<sup>th</sup> percentiles, respectively (Fig. 4). Streamflow on the San Juan River near Bluff, UT is at the 45<sup>th</sup> percentile.

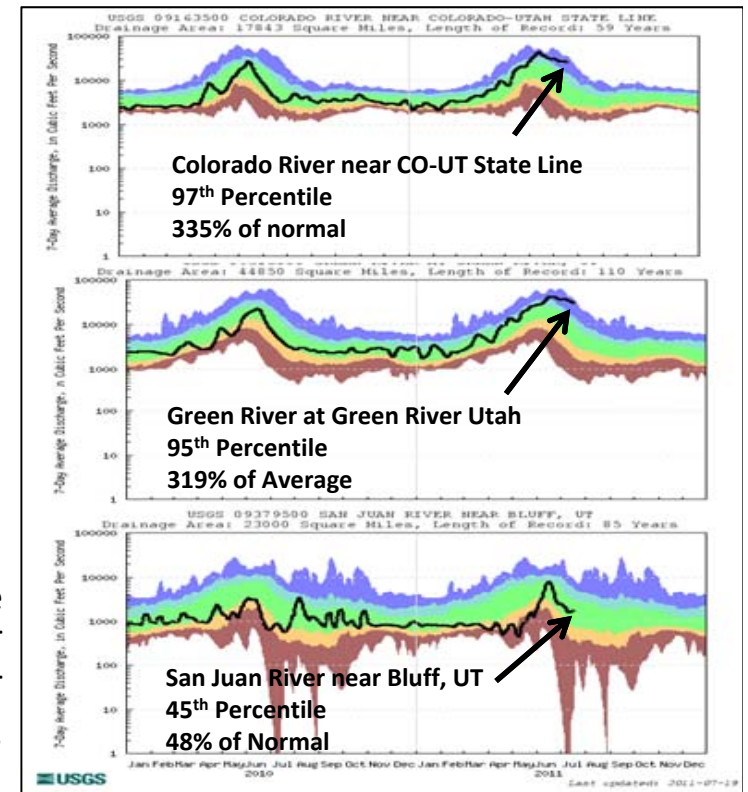
After continued increases in storage volume since the beginning of July, most major UCRB reservoirs have seen storage volumes remain steady over the last week. Storage volumes at McPhee and Navajo reservoirs continue to decrease. All of the major reservoirs above Lake Powell are currently above their average July levels. Lake Powell's storage has increased 3.7% month-to-date and is currently at 86% of average.



Explanation - Percentile classes							
<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: black;">●</span>	<span style="color: grey;">●</span>
Low	<10	10-24	25-76	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Fig. 3: 7-day average discharge compared to historical discharge for July 18<sup>th</sup>.

Fig. 4: USGS 7-day average discharge over time at the CO-UT stateline (top), Green River, UT (middle) and Bluff, UT (bottom).



# Water Demand

Above average temperatures continue this month across most of the UCRB and eastern plains of CO. Much warmer temperatures (4° to 8° above average) were observed over the San Luis Valley and southeast CO. The warmer temperatures have contributed to higher potential evapotranspiration (PET) in drought stricken areas. In the Arkansas basin, PET is currently just above average, on track with the drier years (Fig. 5). In the San Luis Valley, PET is still tracking above the highest ET year, but is not as high as seen in recent weeks (Fig. 6). A continuation of high ET rates means that any precipitation that does fall in the area will quickly be lost again to the atmosphere and will be of little benefit in alleviating current drought impacts.

Soil moisture conditions remain poor for the San Luis Valley. Soil moisture is above average along the Wasatch range in UT, in the northern CO mountains, and in northeast CO. Satellite imagery of vegetation conditions show very dry vegetation with little growth around the Four Corners, the San Luis Valley, and southeast CO (Fig. 7). Vegetations conditions are moist for the northern portion of the UCRB and are near average for northeast CO.

## Precipitation Forecast

Monsoonal moisture will be moving over the UCRB today, and will continue to impact the area through the upcoming week. While these convective showers may not be widespread, individual cells will have the potential to produce heavy rain rates in excess of one inch per hour. Weak disturbances moving over the basin should help trigger storms once daytime heating destabilizes the atmosphere, with less storm coverage during the evenings. Precipitation chances for the rest of the week will depend heavily on where the monsoonal moisture plume is positioned and the timing of the upper level disturbances moving through it. A weak trough moving to the north will push the best chance of rain eastward along the CO divide on Wednesday. Eastern UT/western CO will see a downturn in activity until this weekend when the ridge rebuilds westward and moisture is allowed to move north from Mexico. Beyond the weekend, forecast models show the hot ridge moving even further westward with above average temperatures for the entire UCRB. Chances for precipitation will still remain as moisture trapped under the ridge provides fuel for scattered daytime showers.

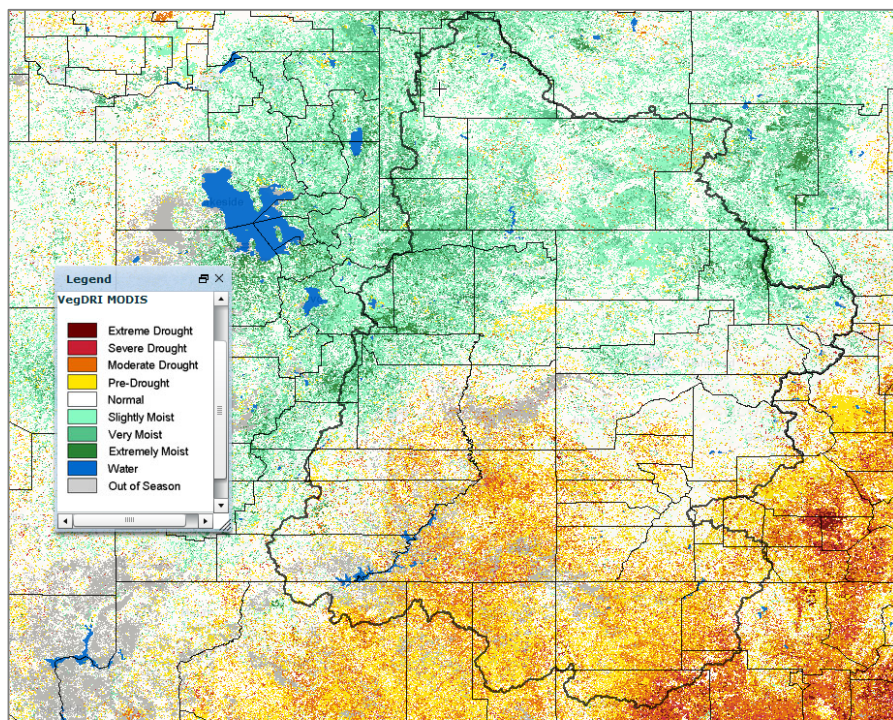
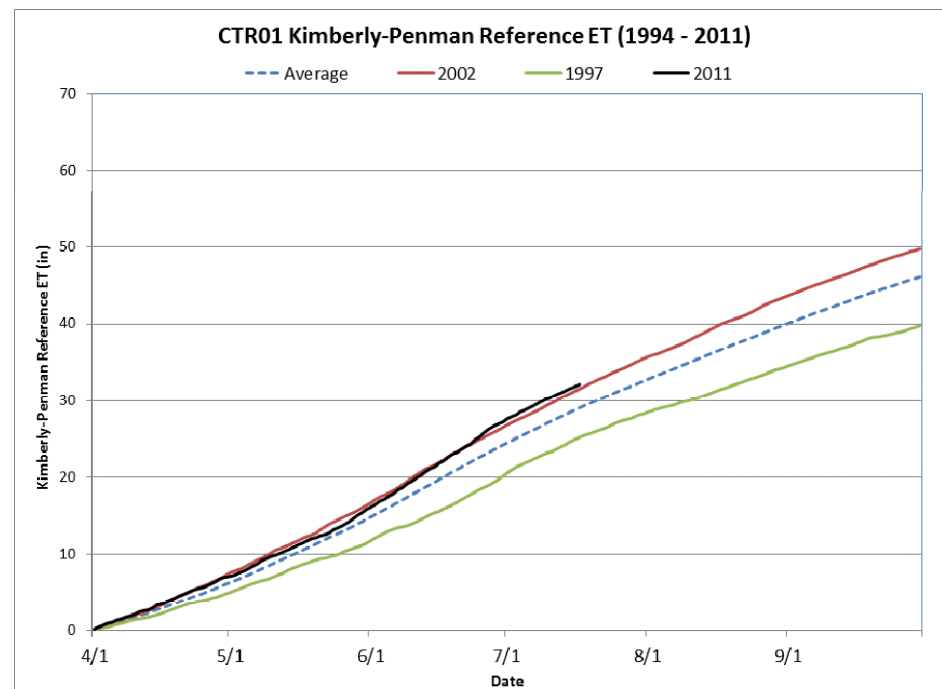
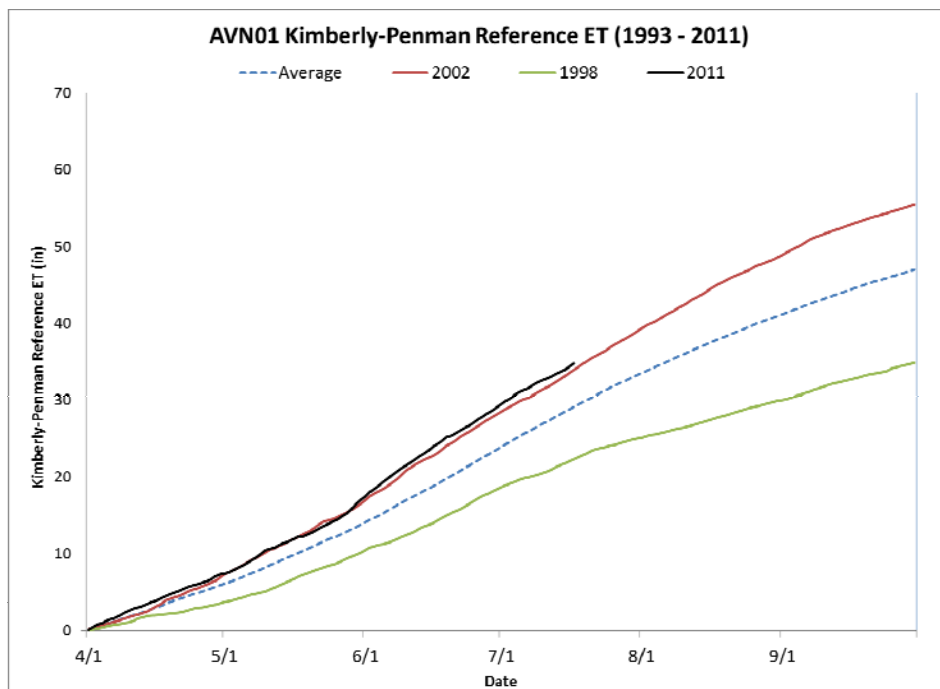


Fig. 5 & 6 (above): Reference evapotranspiration from April 1<sup>st</sup> through July 17<sup>th</sup> at Avondale, CO in the Arkansas River Basin and Center, CO in the San Luis Valley.

Fig. 7 (left): July 18<sup>th</sup> VegDRI map, based on satellite-derived observations of vegetation.



# Drought and Water Discussion

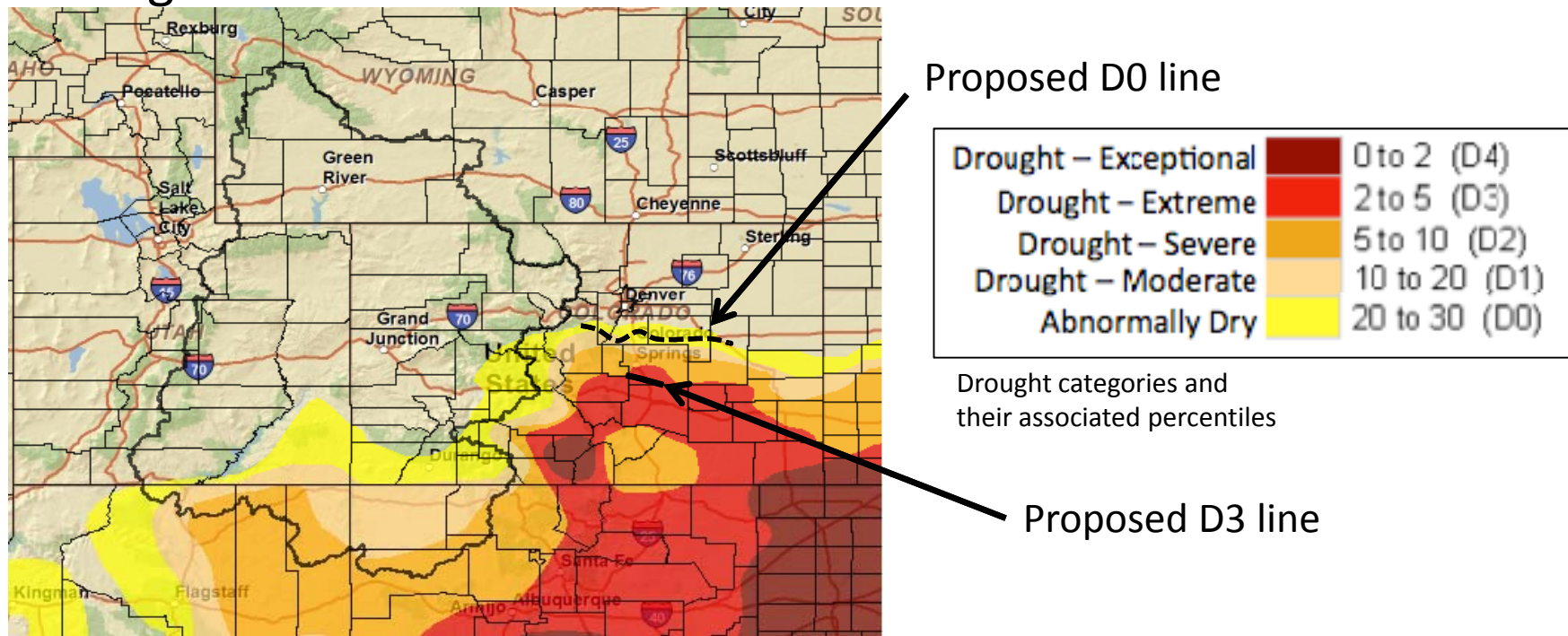


Fig. 8: July 12<sup>th</sup> release of U.S. Drought Monitor for the UCRB

Status quo is recommended in the UCRB for the current U.S. Drought Monitor (USDM) map (Fig. 8). Continued rain over Jefferson, Douglas and Elbert counties warrants a shift of the D0 line to just north of the Teller and El Paso county lines (removed above the dashed black line, Fig. 8).

Additionally, SPI values and observed precipitation in southwestern El Paso County no longer support the presence of D3, and it is suggested that D3 be removed from that part of the county (removed above solid black line in Fig. 8)

No changes are suggested over other drought stricken areas due to below average precipitation, above average temperatures and ongoing impacts.